

PARTIAL READ AND WRITE PATH DATA FLOW
IN A DIRECT ACCESS STORAGE DEVICE

FIG. 1
(Prior Art)

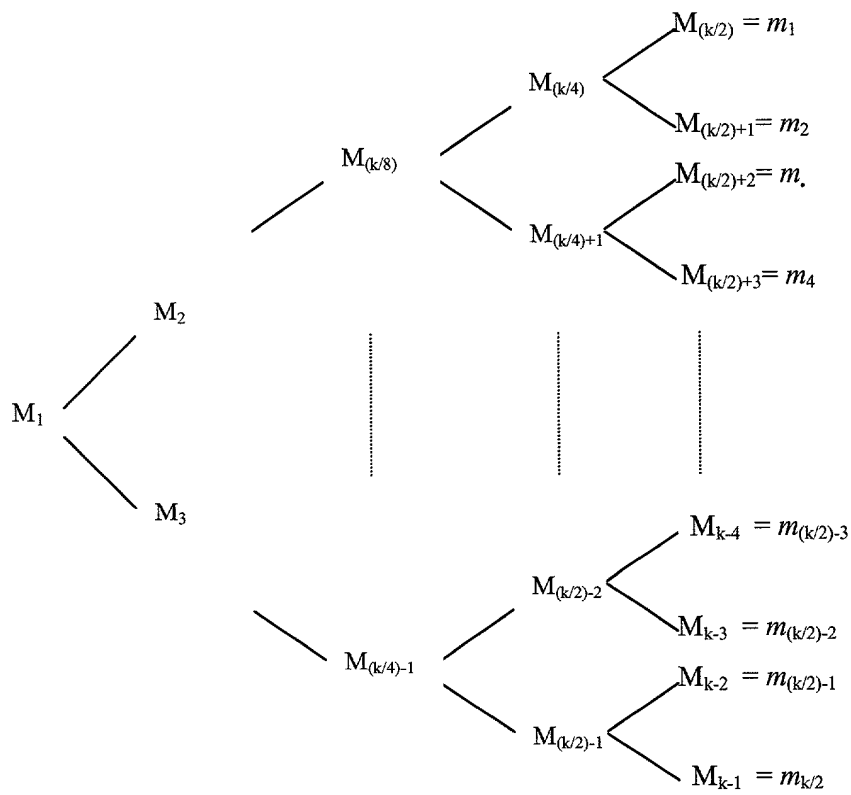


FIG. 2

MULTI-LEVEL ENCODER

$$\overline{M}_4 =$$

$$\boxed{r_{-11}''}$$

$$r_{-1} \Rightarrow$$

$$\boxed{m_1} \quad \boxed{r_{-1}}$$

$$\overline{M}_2 =$$

$$\boxed{\sum_{i=1}^2 r_{-i2}'} \quad \boxed{\sum_{i=1}^2 r_{-i2}''}$$

$$r_{-a} \quad r_{-2} \Rightarrow$$

$$\boxed{m_2} \quad \boxed{r_{-a}} \quad \boxed{r_{-2}}$$

$$\overline{M}_6 =$$

$$\boxed{r_{-31}''}$$

$$r_{-3} \Rightarrow$$

$$\boxed{m_3} \quad \boxed{r_{-3}}$$

$$\overline{M}_1 =$$

$$\boxed{\sum_{i=1}^4 r_{-i3}} \quad \boxed{\sum_{i=1}^4 r_{-i3}'} \quad \boxed{\sum_{i=1}^4 r_{-i3}''}$$

$$r_{-c} \quad r_{-b} \quad r_{-4} \Rightarrow$$

$$\boxed{m_4} \quad \boxed{r_{-c}} \quad \boxed{r_{-b}} \quad \boxed{r_{-4}}$$

CHECK EQUATIONS

$$\boxed{r_{-1} = r_{-11}''}$$

$$\boxed{r_{-a} = \sum_{i=1}^2 r_{-i2}', \quad r_{-2} = r_{-11}'' + \sum_{i=1}^2 r_{-i2}''}$$

$$\boxed{r_{-3} = r_{-31}''}$$

$$\boxed{r_{-c} = \sum_{i=1}^4 r_{-i3}, \quad r_{-b} = \sum_{i=1}^2 r_{-i2}' + \sum_{i=1}^4 r_{-i3}', \quad r_{-4} = r_{-1} + r_{-2} + r_{-3} + \sum_{i=1}^4 r_{-i3}''}$$

$$\frac{C_1 \subset C_1}{C_1 \subset C_2 \subset C_2 \subset C_1}$$

$$\boxed{m_1} \quad \boxed{r_{-1}}$$

$$\frac{C_2 \subset C_1}{C_1 \subset C_2 \subset C_2 \subset C_1}$$

$$\boxed{m_2} \quad \boxed{r_{-a}} \quad \boxed{r_{-2}}$$

$$\frac{C_3 \subset C_1}{C_1 \subset C_2 \subset C_2 \subset C_1}$$

$$\boxed{m_3} \quad \boxed{r_{-3}}$$

$$\frac{C_4 \subset C_1}{C_1 \subset C_2 \subset C_2 \subset C_1}$$

$$\boxed{m_4} \quad \boxed{r_{-c}} \quad \boxed{r_{-b}} \quad \boxed{r_{-4}}$$

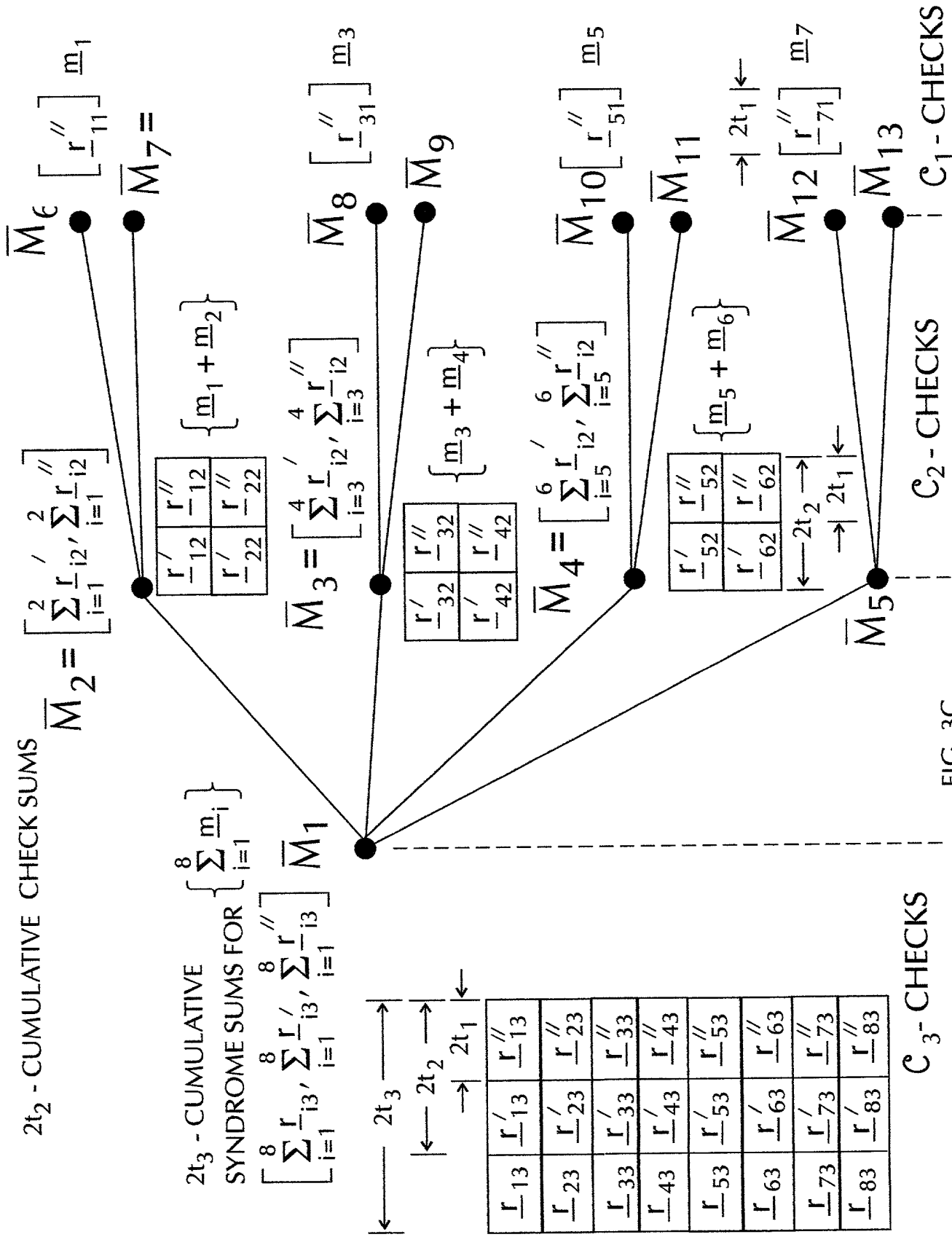
$$\frac{C_1 + C_2 \subset C_2 \subset C_1}{C_1 \subset C_2 \subset C_2 \subset C_1}$$

$$\frac{C_3 + C_4 \subset C_2 \subset C_1}{C_1 \subset C_2 \subset C_2 \subset C_1}$$

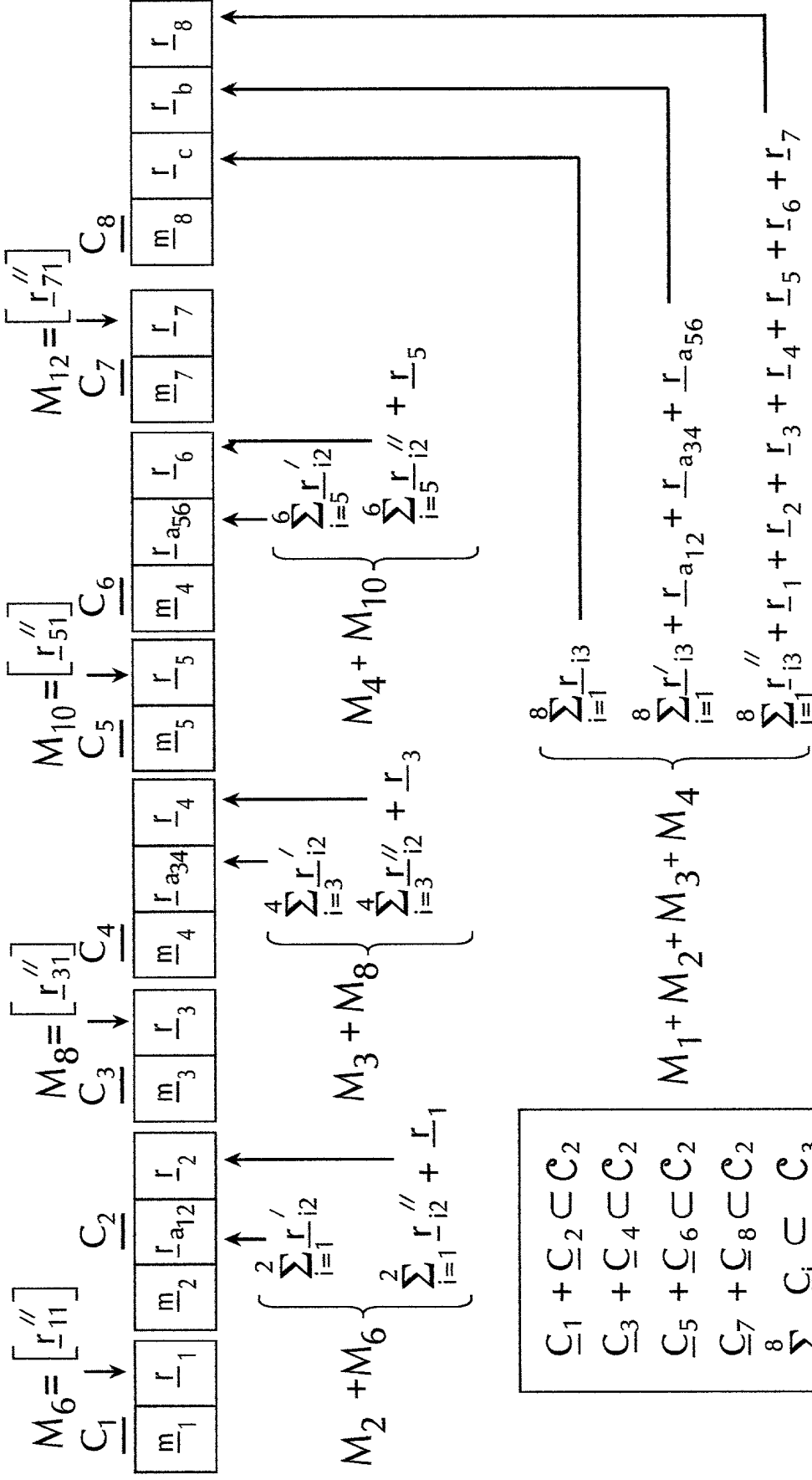
$$\frac{C_1 + C_2 + C_3 + C_4 \subset C_3 \subset C_2 \subset C_1}{C_1 \subset C_2 \subset C_2 \subset C_1}$$

INTEGRATED 4-SECTOR FORMAT

FIG. 3B



MULTI-LEVEL ENCODER CHECK EQUATION



INTEGRATED 8-SECTOR FORMAT

$$C_3 \subset C_2 \subset C_1$$

FIG. 3D

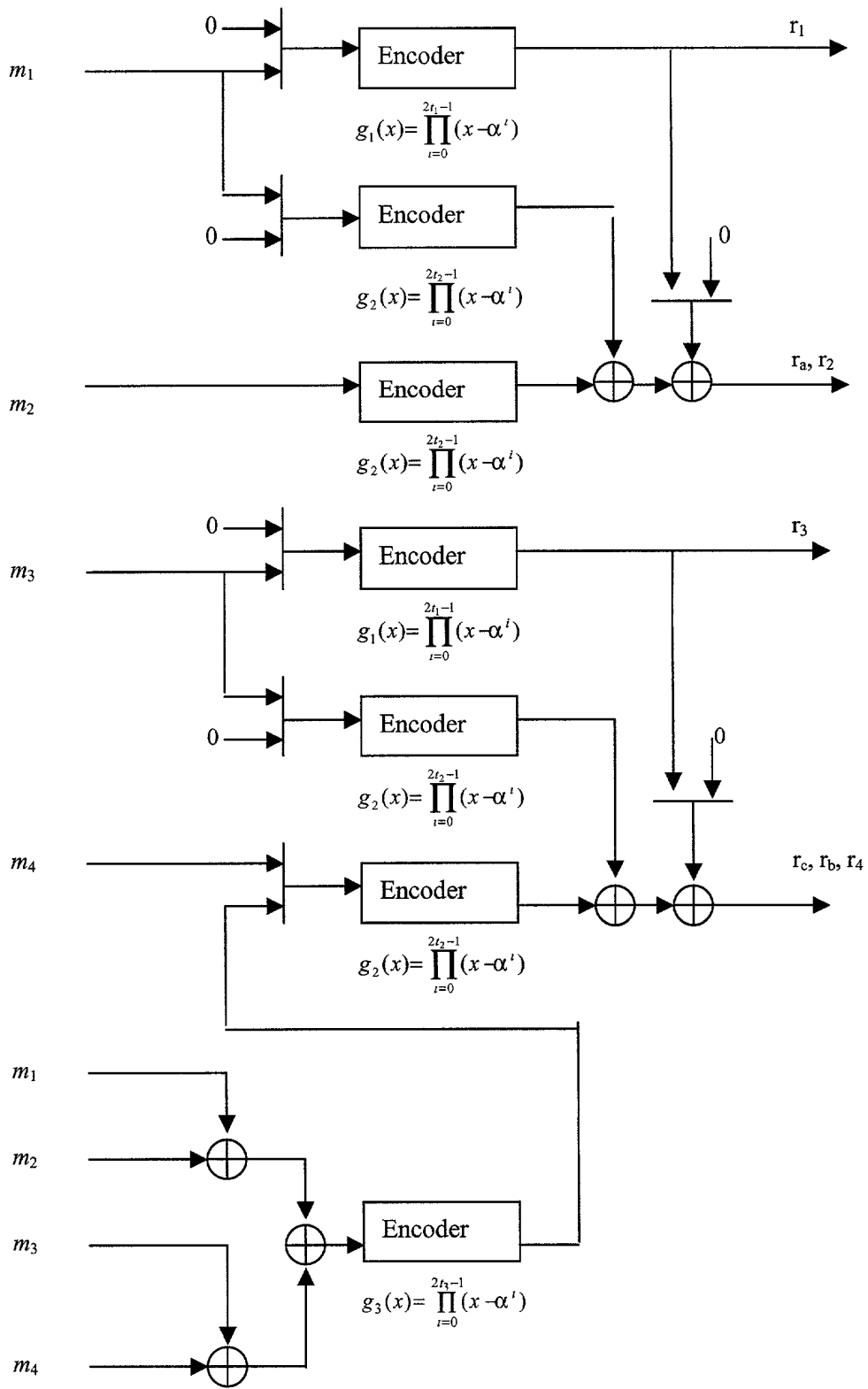


FIG. 4

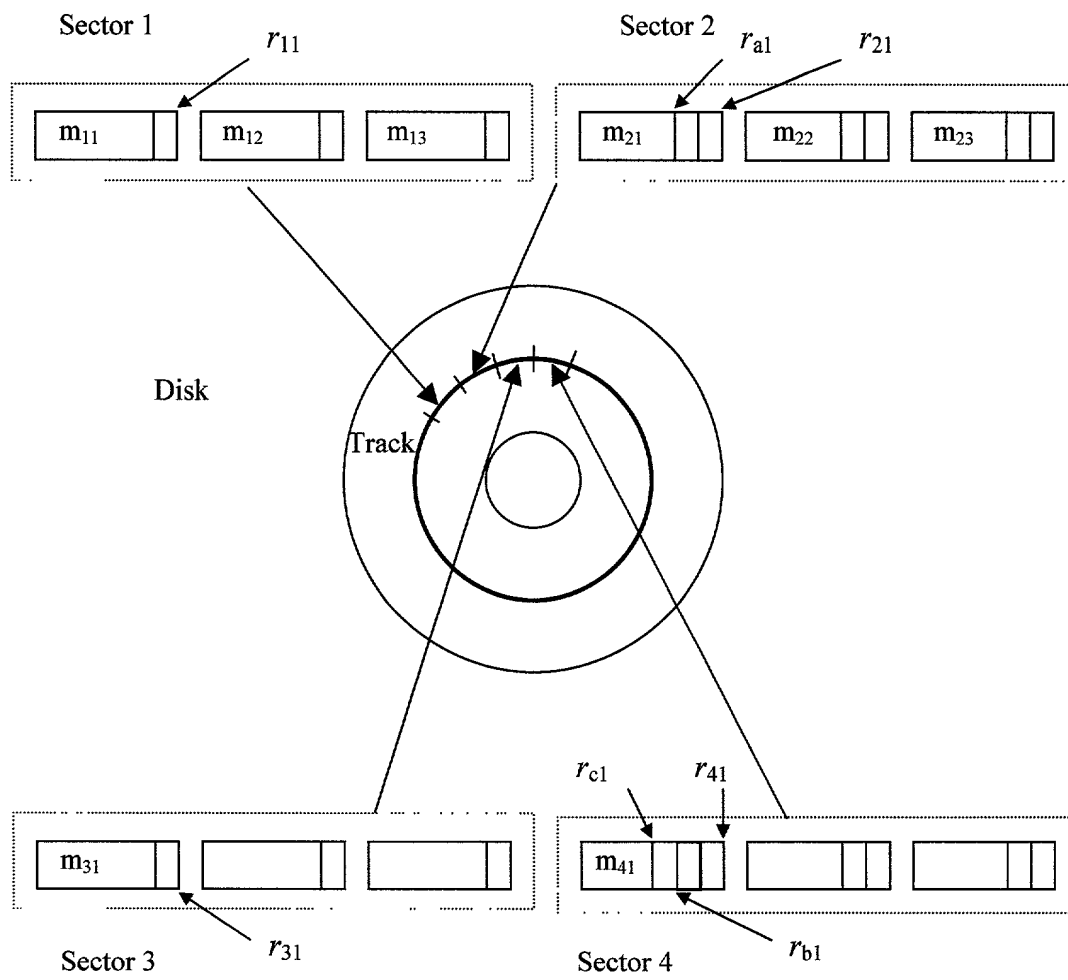


FIG. 5

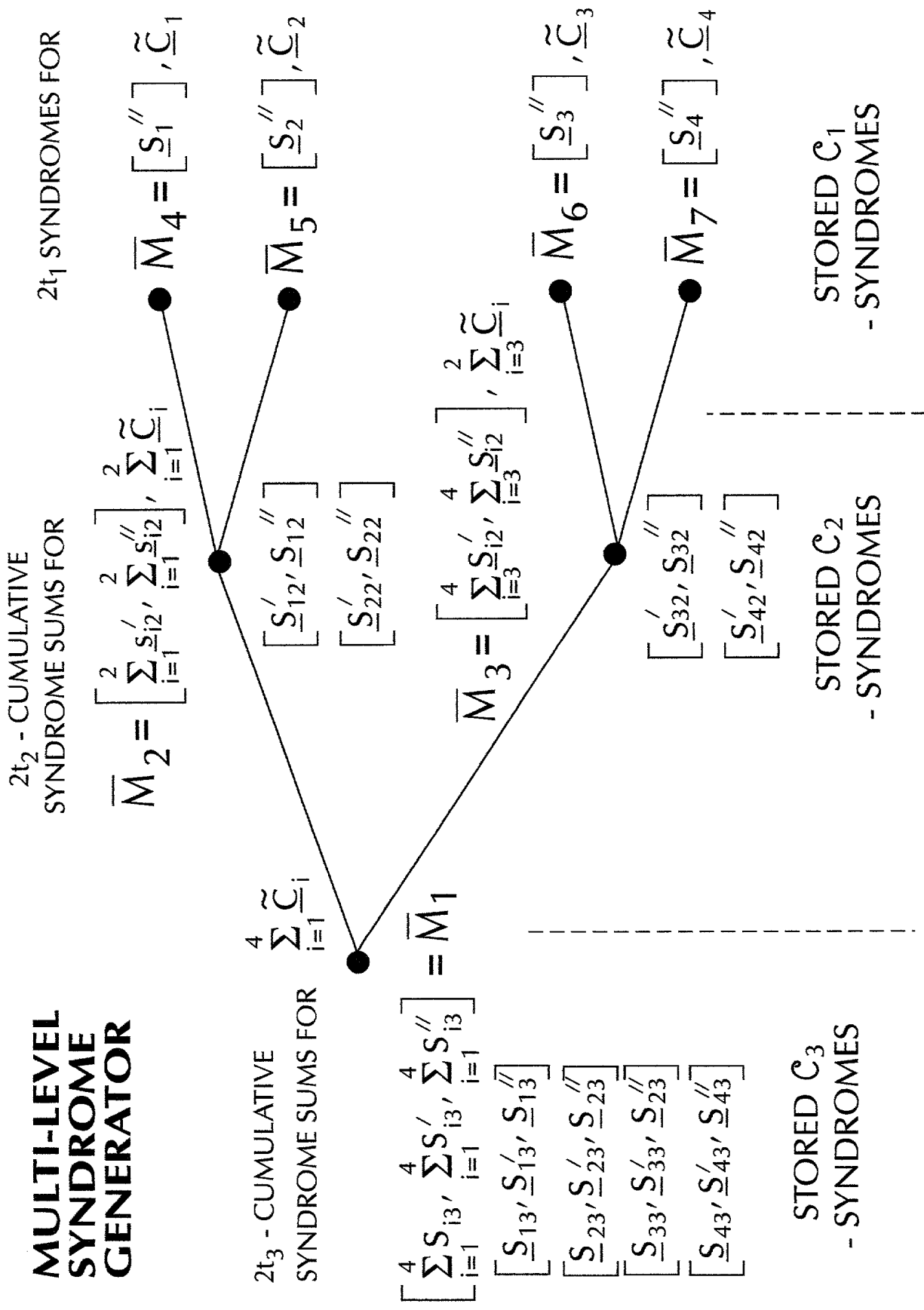


FIG. 6

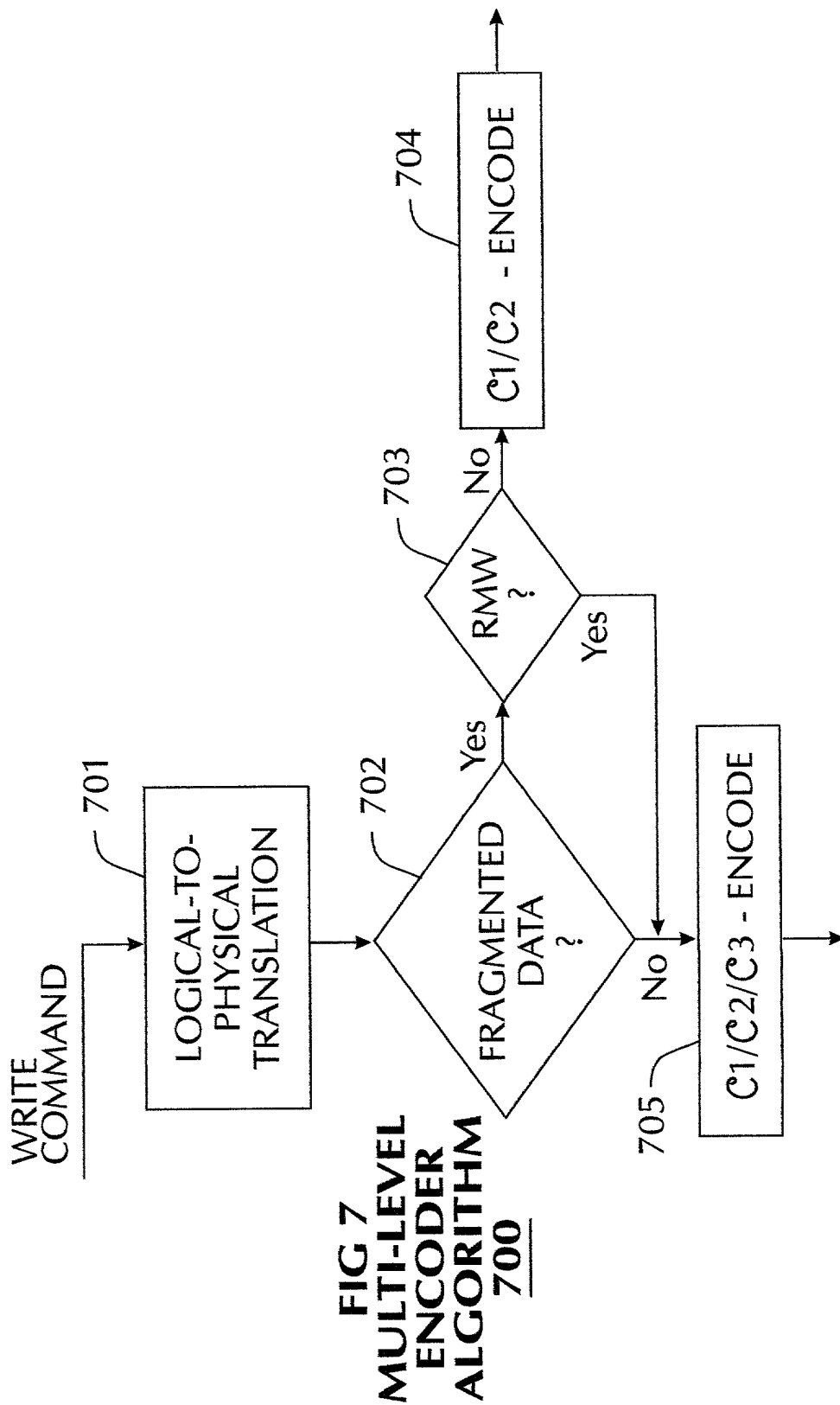


FIG. 8
MULTI-LEVEL
DECODER
ALGORITHM
800

